

1. The empirical formula of a compound is also called the _____ formula. It represents the _____.
2. The molecular formula represents the _____.
3. The empirical formula and the molecular formula are mathematically related as follows:
Molecular formula = _____.
4. Can the molecular formula be the same as the empirical formula? Explain.
5. The molecular formula for glucose is $C_6H_{12}O_6$.
 - a. What is its empirical formula?
 - b. The molecular formula of glucose, $C_6H_{12}O_6 =$ _____ x _____
 - c. The molecular weight of glucose is _____. It is equal to _____ x _____.
6. The molecular formula of benzene is C_6H_6 .
 - a. What is its empirical formula? _____
 - b. The molecular formula of benzene, $C_6H_6 =$ _____ x _____
7. The empirical formula of a compound is NH and its molecular weight is 32.0 amu. What is its molecular formula? _____
8. The empirical formula of a compound is CH. Its molecular weight is 30.0 amu. What is its molecular formula? _____

9. A compound is 81.7% carbon and 18.3% hydrogen.
- What is its empirical formula? _____
 - The formula weight of this compound is 44.0 amu. Is the molecular formula different than the empirical formula? _____
10. Butyric acid is 54.5% carbon, 9.09% hydrogen and 36.4% oxygen.
- What is its empirical formula?
 - Its molar mass is 88.0 g/mol. What is the molecular formula of butyric acid?
11. Isopropyl alcohol contains C, H, and O. When we burn 11.63 g of this compound, the products are 25.5 g CO₂ and 14.0 g H₂O.
- What is the empirical formula?
 - The molar mass of the alcohol is 60.0 g/mol. What is its molecular formula?

12. The complete combustion of a 0.5728 g sample of a compound that contains only C, H, and O produced 0.840 g of carbon dioxide and 0.254 g of water. The molar mass of the compound was determined to be about 60.0 g/mol.

What is the molecular formula of this compound?